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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/652,623

09/02/2003

Jang-Kun Song

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1035

7590

09/20/2004

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EXAMINER

CHOWDHURY, TARIFUR RASHID

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/652,623

Applicant(s)

SONG, JANG-KUN

Examiner

Tarifur R Chowdhury

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 July 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 11-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-13 and 15 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/697,153.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 11, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakai, USPAT 5,691,786 in view of applicant's admitted prior art (AAPA).**

3. Nakai discloses and shows in Figs. 11-3, a thin film transistor array substrate for a liquid crystal display (col. 1, lines 27-29), comprising:

- an insulating substrate (91);
- a gate line (82) formed on the substrate (col. 1, line 36-37);
- a storage capacitor line (83) proceeding parallel to the gate line (82) (Fig. 1, col. 1, line 40);
- a storage capacitor electrode (83a) connected to the storage capacitor line (83) and extended along an edge of the pixel region (Figs. 1 and 3; col. 1, line 41);
- a gate insulating layer (89) formed on the gate line (82), the storage capacitor line (83) and the storage capacitor electrode (83a);
- a data line (81) formed on the gate insulating layer (89);
- a pixel region defined by the gate line and the data line (Figs. 1 and 3);

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- a pixel electrode (86) entirely covering a portion of the storage capacitor electrode (83a) (Figs. 1 and 3).

Nakai differs from the claimed invention because he does not explicitly disclose that the a protective layer is formed on the data line and the pixel electrode is formed on the protective layer as well as the pixel electrode having openings. However, forming a protective layer between the data line and the pixel electrode is common and known in the art (as evidenced by the AAPA) for several reasons such as to prevent any contamination and thus would have been obvious. Further, the AAPA described in the instant application discloses that by forming opening patterns or protrusions in the electrode it is possible to realize wide viewing angle characteristics (page 1, lines 18-20).

The AAPA is evidence that ordinary workers in the art would find a reason, suggestion or motivation to form openings in the electrode.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to form openings in the pixel electrode of Nakai in order to realize wide viewing angle characteristics, as per the teachings of the AAPA.

Accordingly, claims 11 and 15 would have been obvious.

As to claim 12, Nakai shows in Fig. 1 that the storage capacitor electrode is formed at a left side and a right side of the pixel region.

**4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Nakai in view of AAPA as applied to claims 11, 12 and 15 above and further in view of Song, USPAT 6,252,643 B1.**

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5. The limitation still lacking is that the common electrode line comprising two separate lines.

Song discloses a thin film transistor array substrate for liquid crystal display wherein the common electrode line comprises two separate lines (Figs. 10-12; col. 8, lines 33-50). Song further discloses that common electrode line comprising two separate lines is advantageous since it will allow to measure a voltage drop occurring in a substantially central portion of the matrix and thus prevent flicker from being generated in the image displayed by the device and improve uniformity of contrast and brightness of the image (col. 2, lines 50-61; col. 3, lines 50-53).

Song is evidence that ordinary workers in the art of liquid crystal would find a reason, suggestion or motivation of using common electrode line that comprises two separate lines.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the device of Nakai when modified by the AAPA such that the common electrode line comprises at least two separate lines so that the voltage drop occurring in a substantially central portion of the matrix can be measured and thus flicker generation in the image can be prevented and uniformity of contrast and brightness of the image can be improved, as per the teachings of Song.

Accordingly, claim 13 would have been obvious.

***Allowable Subject Matter***

6. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

7. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

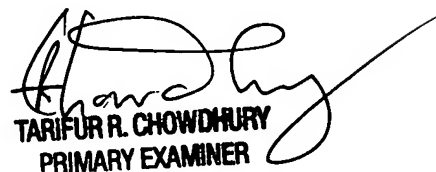
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (571) 272-2287. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRC  
September 14, 2004

  
TARIFUR R. CHOWDHURY  
PRIMARY EXAMINER